OBSERVATION ON THE COURTSHIP OF BRENTHIS ANCHORAGO L. (COLEOPTERA, BRENTHIDÆ)

By Borys Malkin

The following observations were recorded by the writer while on a collecting trip in the vicinity of Tolosa, Oaxaca, in Mexico, during the first two weeks of September 1947. Tolosa is located on the Trans-Isthmian railroad on the Atlantic side of the Isthmus of Tehuantepec about 10 miles south of the Vera Cruz border. The country is low, the hills not exceeding 500 feet, the average being less than 200 feet. There is some grassland but, in the main, dense tropical rainforest covers the area.

The visit took place during the peak of the rainy season. The rains fell throughout the night and also with interruptions during the day. Only two days, in the four weeks that the writer remained in the locality, could be considered as completely sunny. On other days the sun appeared only sporadically.

Brenthis anchorago L. is certainly the most common beetle of the family *Brentidæ* in the area, in fact it is probably the most common of all Central American representatives of this group. The beetles were numerous and gregarious. Sometimes as many as 40 specimens would appear on a log or a portion of it. No preference for any particular section of the log was observed. However, exposure to direct sunshine was obviously avoided. The beetles retreated to the shaded part of the fallen timber as the sun's rays fell upon them. The greatest activity was observed during the morning hours, slackening toward noon until most of the insects would gradually disappear in crevices or under bark by 5:00 P.M.

The courtship activities of these insects may be summarized as follows: The male is the active party while the females remain passive at least until males appear in their vicinity. Occasionally the female may remain unreceptive and walk away from the approaching male. Usually, both male and the female in each other's presence show excitement in moving the antennæ about

rapidly and in their nervous, haphazard movements. Then the male will wander about the female until he succeeds in placing his proboscis upon her thorax or head. The male attempts to place the proboscis as close to the head as possible. This apparently stimulates the female who remains on the spot. The male then proceeds to rub the proboscis against her thorax and head. Should it slide, the male will promptly adjust the proboscis and restore it to the former position.

This action may last for a considerable length of time. While the average time ranged from 5 to 10 minutes, I observed certain males continuing this action for much longer. This seems to be preparatory to copulation which almost never takes place without it. Unlike the copulation in some beetles, notably the *Coccinellidæ*, here it is brief. A number of observed pairs remained in contact for 30 to 100 seconds with 45 seconds being the average. If the male is larger than the female they usually remain in one spot. If smaller, which does not happen frequently, the female may wander around carrying the male on her back.

As soon as the male mounts the female she begins boring into the wood by moving her thorax up and down. This she usually keeps on doing during the actual mating and after it has been completed, seemingly ignoring the male's presence. The courtship does not end with the copulation but continues after it has been consummated. As in the initial approach the male attempts to rub the female's thorax or head with his proboscis. Some pairs were observed courting for 15 minutes until the second mating took place. Casual contacts with the female occur but rarely. One pair may remain together for as long as half an hour or longer. In one instance that much time elapsed between the initial and the second copulation. This is in striking contrast with the *Coccinellidæ* where the mating is long when compared with the duration of the courtship.

Leaving the female, the male wanders away in search of other partners. In the meanwhile the female will remain passive continuing her borings. These are very dense. On one side of a log I counted from twenty to thirty to a square inch which shows that one female makes several of them in a day. The use of these I do not know. Very likely the eggs are deposited in them

although I have never observed this myself. Beeson* believes that some of the Indian species of the family lay their eggs in this manner.

The males usually do not attempt to mate with another male unless the individual is already in contact with a female. Then hurriedly and excitedly they crawl upon the back of a more successful male and attempt to mate with either the male or female indiscriminately. It seems that the smaller male will attempt this more frequently as this is the time when they presumably can approach the female unnoticed while the larger individual is totally preoccupied with her.

In general, however, the size of the male seems to have little effect on his ability to find a mating partner. In direct approaches to the female, large size is rather detrimental as the larger male specimens are slower and clumsier in walking on the rough surface of the log than the smaller ones. Their enormously developed thorax and proboscis are detrimental in this respect. The male is inclined to the exclusive possession of the female during the courtship and will drive off any competitor that may come close to the scene. These fights are not intense and consist chiefly of pushing each other with the proboscis until one of them retires. The victorious male will follow the intruder occasionally as far as 10 inches from the female. Usually the male, already in possession of the female, wins the contest. Here it is that size seems to be of some advantage as the larger male always succeeds in driving the competitor off. These intrusions are frequent. In one observed instance a large male remained with the female for 38 minutes during which time he had fought off four different males. Each time when the danger had passed he returned to the female.

* Beeson C. F. C. *Notes on the Biology of Brenthidæ.* Indian Forest Records. Vol. XI. part. IV. p. 178–188.